

USSR

UDC 669.781.053.28

SEREVRYAKOVA, T. I., and MAREK, E. V.

"Production of Borides by Borothermal Reduction of Metal Oxides in a Vacuum"

Metalloterm. Protsessy v Khimii i Metallurgii [Metallothermal Processes in Chemistry and Metallurgy -- Collection of Works], Novosibirsk, Nauka Press, 1971, pp 78-84 (Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract No 3G144 by the authors)

Translation: A brief review is presented of popular methods for the production of borides, the advantages of the borothermal method of production of borides are indicated, and works are studied which deal with the composition of gaseous B_2O_2 liberated during reduction of metal oxides by boron in a vacuum. Results are presented from thermodynamic calculation of the free energy and equilibrium temperatures of formation of borides by the alkali earth and transition metals in the reaction $MeO + B \rightarrow MeB_2 + B_2O_2$. The basic results are presented from experimental studies of borothermal methods, and optimal modes for the production of transition metal diborides are presented. 3 figures; 2 tables; 15 bibliographic references.

1/1

USSR

UDC 548.004.12:621.319.1

KRIVOSHCHIEKOV, G. V., KRUGLOV, S. B., ~~MARENINIKOV, S. I.,~~ and POLIVANOV, Yu. V.

"A Method for Measuring the Temperature Dependence of the Electro-Optical Coefficients of Ferroelectric Crystals"

Moscow, Metrologiya, No 7, 1972, pp 50-55

Abstract: When using optically transparent ferroelectric crystals for controlling laser emission, their electro-optical constants must be known within a wide temperature range. A simple method is proposed for determining the temperature dependence of the linear r_{ijk} and the quadratic R_{ijkl} electro-optical coefficients within the temperature range from 27°C to -195°C , which includes the Curie points (T_C) of KDP and ADP crystals, as well as their deuterated isomorphs. The method consists in measuring the transmission value of the light beam of an He-Ne laser, passed through an optical system containing a polarizer, a crystal, and an analyzer, at a constantly changing temperature and a fixed electrical field. This method avoids the possibility of transmitting the temperature properties of the electro-optical constants near the points of phase transition. 4 figures. 6 references.

1/1

USSR

UDC 621.373.826:535

GAYNER, A. V., KRIVOSHCHIEV, G. V., KRUGLOV, S. V., LEBEDEV, V. V., and
MARENNIKOV, S. I.

"Studying the Characteristics of a Wide-Angle System for Converting Images From
Infrared to Visible Region"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics — collection of
works), Vyp. 2, Novosibirsk, 1972, pp 360-366 (from RZh-Radiotekhnika, No 11, Nov
72, Abstract No 11 D144)

Translation: None.

USSR

UDC 576.858.13.095.383

BEKTEMIROV, T. A., SHENKMAN, L. S., and MARENNIKOVA, E. S., Chair of Virology,
Central Institute of Advanced Training of Physicians and Moscow Scientific
Research Institute of Viral Preparations

"Induction of Interferon by Vaccinia Virus Strains Differing in Pathogenicity"

Moscow, Voprosy Virusologii, No 5, 1971, pp 555-560

Abstract: Experiments on rabbits and mice revealed an inverse relationship between the amount of interferon induced by intracerebral injection of various vaccinia virus strains (EM-63, B-51, L-IVP, white clone of the Tashkent strain) and their pathogenicity. The strains of low pathogenicity (EM-63 and B-51) induced more interferon and did so earlier than the pathogenic strains (L-IVP and Tashkent). However, intravenous injection of mice with the different virus strains resulted in the Tashkent strain inducing the largest amount of interferon. The amount of virus in the brains of mice and skin of rabbits decreased just when the interferon concentration was highest for the particular strain. In vitro tests showed the Tashkent strain to be the least sensitive to interferon. The other three strains were less resistant to the inhibiting effect of interferon.

1/1

USSR

UDC 616.912-085.371-039.71-06:616.831-002

MARENNIKOVA, S. S., and MATSEVICH, G. R., Moscow Institute of Viral Preparations

"Neurological Complications After Smallpox Vaccination"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 3-7

Abstract: Neurological complications, chiefly encephalitis, occur in approximately one child per 1,500,000 vaccinated: one complication per 250,000 vaccinated once and one per 10,000,000 revaccinated. In children under 1 it occurs in one case per 325,000 children after the first vaccination, increasing in children over 1 to one case per 100,000 vaccinated. The greater frequency of neurological complications among those vaccinated once compared with the revaccinated (40 times) and the threefold increase among those over 1 indicates that the vaccinal status and age when the initial vaccination is made are the most important factors in the frequency with which cerebral complications occur. Data from foreign sources show that the frequency of neurological complications in the USSR is considerably lower than in most Western European countries. Vaccines made from highly reactive strains produce the most complications. The course of the disease is particularly

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USSR

MARENNIKOVA, S. S., and MAISEVICH, G. R., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 3-7.

severe and the death rate very high (50%) when the children are vaccinated despite contraindications. The complications are much milder and the death rate lower (about 22%) in revaccinated children.

2/2

- 54 -

Epidemiology

USSR

UDC 616.912-039-022.6:576.858.13

MARENNIKOVA, S. S., SHELUKHINA, E. M., MAL'TSEVA, N. N., and LADNYI, I. D.,
Moscow Scientific Research Institute of Virus Preparations

"Monkey Pox Virus -- the Agent of a Smallpox-Like Disease in Man"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 463-469

Abstract: After a case of smallpox (boy aged 9 months) was reported from a remote village in equatorial Congo where, due to vaccination, no smallpox had occurred during the preceding two years, the patient was taken for special observation and treatment. The skin eruption, though initially identical with regular smallpox, subsequently changed, with the vesicles and pustules becoming polymorphous and developing hemorrhagic points. Exudate collected from the vesicles was incubated at 35°C on chorio-allantoic membranes of chick embryos, and a virus was isolated after the first passage. Unlike the standard smallpox virus, the newly isolated virus displayed strong hemagglutinating and hemadsorptive activity, induced necrosis after intradermal injection in rabbits, and caused eruption on the chorio-allantoic membrane even when incubated at a higher temperature (39°C). Additional comparative tests performed on the newly isolated virus, on smallpox, cowpox, and monkey smallpox viruses, and on Vaccinia virus established the identity between the newly isolated virus

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MARENNIKOVA, S. S., et al, Voprosy Virusologii, No 4, Jul/Aug 71, pp 468-469

and monkey smallpox virus. Epidemiological investigation of the village revealed no other cases of this disease. Nor was it possible to establish by what route the child had contracted the disease. Nevertheless, the results clearly indicate that monkey smallpox virus is pathogenic for man and causes a smallpox-like disease in humans.

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cerebrally 24 hrs after irradiation, a disease developed which was similar in its manifestations to that observed in infected, nonirradiated mice 12-15 days old (normally susceptible to infection with smallpox virus). The sensitivity of irradiated mice to the virus decreased with increasing age: lg LD₅₀ was 2.76 and 1.5 for mice 28-31 and 34-37 days old, respectively, while mice 40-45 days old remained nonsusceptible to infection with the virus after irradiation. The resistance of mice 28-31 days old to intranasal and intravenous infection with smallpox virus remained unaltered after irradiation.

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Radiobiology

USSR

UDC 612.017.1.014.481.1

MARENNIKOVA, S. S., and SHAFIKOVA, R. A., Laboratory of Smallpox Prophylaxis,
Institute of Virus Preparations, Ministry of Health USSR, Moscow

"Increase in the Sensitivity of White Mice to Smallpox Virus After General X-Ray
Irradiation"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 8, Aug 70,
pp 102-105

Abstract: White mice 28-45 days old (normally resistant to infection with small-

USSR

UDC 536.24:532.54

MAREN OV, A. YE.

"Study of Heat Exchange During the Flow of Rarefied Gases Through Pipes at High Speed"

Uch. zap. Mosk. obl. ped. in-t (Scientific Notes of Moscow Oblast Pedagogic Institute), 1971, 270, pp 140-151 (from RZh--Mekhanika, No 6, Jun 73, Abstract No 6B777)

Translation: Some results are presented from an experimental study of heat transfer in cylindrical and expanding brass pipes during the flow of a rarefied gas in the region of "flow with friction," $0.06 \leq M/\sqrt{\mu} \leq 0.2$, where all the parameters were calculated with respect to the mean values under the assumption of uniformity of the flow. A procedure was discussed, and a description of the experimental setup was given. The flow rate, temperature and pressure of the flow were measured. The values of the local Nusselt numbers and their comparison with the Nusselt numbers in the case of flow of a continuous medium are presented. It is indicated that the experimental data obtained do not encompass the formulas available in literature and that it is necessary to find the more complex relations. The bibliography has 12 entries.

1/1

avtomat. upr. T. 2. Primeneniye invariantn. sistem avtomat. upr. (Works of the Third All-Union Conference on the Theory of Invariance and its Application to Automatic Control Systems. Vol. 2. Use of Invariant Automatic Control Systems), Moscow, "Nauka", 1970, pp 168-176 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9A154)

Translation: The authors consider the possibility of ensuring invariance of a system for automatic longitudinal stabilization of a VTOL aircraft under steady-state flight conditions with respect to external and parametric perturbations. Reactive (jet) rudders and elevator motors are proposed as the actuating units for parallel channels in the system. An estimate is given of the feasibility of realizing an invariant system with regard to inertness and the energy characteristics of the power-lift plant in the aircraft. Authors' abstract.

1/1

USSR

UDC: 62-50

MARESH, R. M., VIGOVSKIY, V. T.

"Invariant System for Automatic Stabilization of a Vertical-Takeoff-and-Landing (VTOL) Aircraft Under Steady-State Flight Conditions"

Tr. 3-go Vses. soveshchaniya po teorii invariantnosti i yeye primeneniyu v sistemakh
avtomat. upr. T. 2. Primeneniye invariantn. sistem avtomat. upr. (Works of the

USSR

UDC 621.391.2

ZACHEPITSKIY, A. A., MARESKIN, V. M., PAKHOMOV, YU. I.

"Detection of Weak Signals Against a Background of Narrow Band Noise"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2055-2063

Abstract: A study was made of the problem of detecting a weak signal against a background of narrow band noise. The structure of the optimal detector was determined for a class of nonstationary nongaussian noise, and its efficiency was evaluated. The algorithm is defined for optimal detection of weak signals and narrow band noise as a nonlinear inertialess transformation and matched processing of a discrete sample of quadrature components of the input process. The optimal processing algorithm is also presented for noise distribution in polar coordinates. Some examples of gaussian nonstationary noise are also considered.

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- 57 -

AA0047079

MARETS, V. M. UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

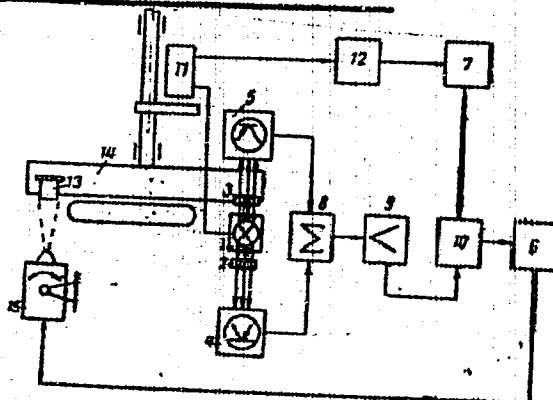
241700 FILM THICKNESS CHECK RIG to control it during its application on cathode (13) from atomizer (15) has on the same rotating holder as the cathode a transparent indicator (3). The film thickness on the latter is compared with that on a reference indicator by a photoelectronic system which is actuated periodically by lamp (1) switched on by pick-up (11). When the required film thickness has been reached, the atomizer is cut off.
26.1.68 as 1214955/25-28. I.A. PRUDVILLOKH et alia.
LVOV POLYTECHNIC (25.8.69) Bol 14/18.4.69. Class 42b
Int.Cl.G 01 b.

19790550

AA0047079.

AUTHORS: Prudviblokh, I. A.; Greben', Yu. I.; Kedra, Yu. V.; Marets, V. M.;
Traube, L. V.; Oranskiy, G. A.; Soroka, B. P.

L'vovskiy Politekhnikheskiy Institut



19790551

Rubber and Elastomers

USSR

UDC 678.032.3:678.762.2:678.01:

539.3

SIDOROVICH, YE. A., MAREY, A. I., and KUVSHINSKIY, YE. V., All-Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lavelev

"Effect of the Molecular Weight of Rubber on the Temperature Dependence of the Dynamic Mechanical Properties of Its Vulcanizates"

Moscow, Kauchuk i Rezina, No 8, 1970, pp 3-6

Abstract: The authors undertook to study variations in the dynamic mechanical properties of rubberlike polymers of varying molecular weight, with a varying degree of cross-linking, in a wide temperature range. Cis-1,4 butadiene rubbers SKD and natural rubber were used as the objects of study. It was found that in the region above the transition temperature the molecular weight of rubber is the principal factor governing the dynamic behavior of the vulcanizates. The influence of the initial molecular weight of the rubber becomes insignificant only with rather high degrees of cross-linking (considerably above the optimal degrees). An increase in the initial molecular weight increases the rebound elasticity of the vulcanizates and decreases its temperature coefficient. Inversion of the elasticity temperature coefficient
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USSR

SIDOROVICH, YE. A., et al., *Kauchuk i Rezina*, No. 8, 1970, pp 3-6

is observed with a change in the thickness of the vulcanization network. An increase in the molecular weight increases the degree of cross-linking at which the inversion occurs. The character of the observed regularities is not affected by the type of rubber or cross-linking.

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USSR

UDC 678.4.074:53

MAREY, A. I., SIDOROVICH, Ye. A., and NOVIKOVA, G. Ye., All Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev

"Dependence of the Physical Properties of Elastomers on Their Chemical Composition and Molecular Structure"

Moscow, Kauchuk i Rezina, No 2, 1971, pp 9-12

Abstract: For a number of years the All Union Scientific Research Institute of Synthetic Rubber has been performing research on the effect of peculiarities of the molecular structure and chemical nature of rubbery polymers on their glass transition temperature, elastic dynamic properties and crystallization ability. It has been found that the glass transition temperature is a linear function of the reciprocal value of the molecular weight of the polymer and linearly depends on the concentration of functional groups asymmetrically or statistically arranged in the polymer chain, the degree of this dependence being proportional to the interaction energy of the functional groups. The mechanical behavior of elastomers is primarily due to their relaxation properties, which depend on the internal mobility of the polymer chains. While the chemical structure of a polymer mainly determines the lower bound of the

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USSR

MAREY, A. I., et al, Kauchuk i Rezina, No 2, 1971, pp 9-12

manifestation of elastic properties, such parameters as molecular weight, molecular-weight distribution, space network density determine the viscoelastic behavior in the region of the highly elastic state. Elastomers may have a different degree of structural order according to the character of the macromolecular chain construction (e. g., in a cis or trans configuration) and chain stereoregularity. These factors also affect the temperature-frequency dependences of the viscoelastic properties of elastomers. The character of crystallization processes in elastomers is affected by microstructure purity, vulcanization network density and other factors. Accelerated methods have been developed for the kinetic study of crystallization, and the determination of the equilibrium crystalline state of vulcanizates by measuring their modulus of elasticity in compression and permanent tensile elongation. A study of the crystallization of polysiloxanes established that, in contrast to the general rule, the creation of a space vulcanization network up to a certain limit accelerates their crystallization. Only vulcanizates with a dense network crystallize more slowly than the initial polymers. As a result of findings on the effect of different molecular-structure parameters and molecular chain orientation in crystallization on the mechanical properties

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Thus, in a soil consisting mainly of a sand fraction the passage of cesium-137 was more pronounced. Similar observation were made in respect to all of the objects examined. However, no differences in the migration of strontium-90 could be detected. Due to the high passage of cesium-137 into food products its content in the human body was high as well.

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REEL/FRAME

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19681111

Acc. Nr.: **AP0029510**

Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 1, pp 61-66

FEATURES TO PECULIAR GLOBAL CESIUM-137
AND STRONTIUM-90 REACHING THE POPULATION
OF POLECIA BY DIFFERENT FOOD SUPPLY ROUTES

A. N. Marey, R. M. Barkhudarov, V. K. Chumak, E. V. Petukhova,
E. B. Tyuryukanova, G. A. Kuznetsova, N. Ya. Novikova,
S. B. Pozhivilova, G. A. Bogdanovich

The paper presents investigation data on the order of passage of abovementioned iso-

USSR

MAREYEV, I. V.

"Quasi-optimal Discrete Approximation of Continuous Signals in Information Systems"

Metody i Modeli upr. [Methods and Models of Control -- Collection of Works], No 2, Riga, 1972, pp 19-24 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V648 by Yu. Lin'kov).

Translation: Let F be the space of functions $f(x)$ fixed in sector $[0, T]$, for which there is always a k -th derivative, satisfying the Lipshitz condition with constant L , such that $f^{(r)}(0) = 0$, $r = 0, 1, \dots, k$. Based on known results (PZhMat, 1961, 4B20K), a lower estimate is written for the ϵ capacity of space F in even metrics where $\epsilon \rightarrow 0$ and the dependence of this lower estimate on k and ϵ is analyzed.

Abstractors Note. The work contains misprints. In inequality (3), the exponent $-k/k + 1$ is omitted, while in formulas (5) and (6) the factors $\|f\|$ and $1 + o(1)$ are omitted respectively. Furthermore, it is erroneously stated that inequality (6) follows from (3) on the basis of (5).

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USSR

UDC 8.74

MAREYEV, I. V., SOLOMONOV, L. A., STREKALOV, L. N.

"A Data Gathering Control Algorithm"

V sb. Vopr. kibernetiki (Problems of Cybernetics -- collection of works), vyp. 45, Tashkent, 1971, pp 113-119 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V627)

Translation: A study was made of an algorithm for adaptive digitalization permitting data sampling for transmission over a communications channel at the times of arrival of data on an investigated measuring signal significant to the user. The conditions of creating an adaptive digitalization device are analyzed: selection of the system of base functions, procedures for calculating the coefficients, an algorithm for calculating and controlling the error in the correspondence of the transmitted signal to its model. As the base functions, the orthogonal system of Haar polynomials is used which has the property that any continuous function is expanded in a uniformly converging series in the system functions. It is noted that the algorithm obtained significantly improves the quality of the adaptive interpolation and noiseproofness of the digitalizer, and it increases the length of the adaptation interval.

1/1

USSR

UDC 661.718.1:547.642

ARBUZOV, B. A., ~~MAREYEV~~ YU. M., VINOGRADOVA, V. S., and SAMITOV, YU. YU.,
Chemical Institute imeni A. M. Butlerov, Kazan' State University imeni
V. I. Ul'yanov-Lenin

"Spirophosphoranes Based on Acrolein and Methyl Esters of Ethylene-glycol-
and Butyleneglycol-1,3-phosphorous Acid"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 4, Aug 72, pp 843-846

Abstract: The reaction of acrolein with cyclic phosphites was studied. Addition of acrolein to the methyl ester of ethyleneglycolphosphorous acid in absolute ether yielded 1,6,9-trioxa-[(5-methoxy)-5-phosphaspiro-(4,4)]-2-nonene, b.p. 55-56°/10⁻³ mm, n_D^{20} 1.4820, d_4^{20} 1.3016. When butyleneglycol-phosphorous acid methyl ester was used, the product was 1,6,10-trioxa-9-methyl-[(5-methoxy)-5-phosphaspiro-(4,5)]-2-decene, b.p. 61-62°/10⁻³ mm, n_D^{20} 1.4780, d_4^{20} 1.2041. Addition of methyl vinyl ketone to the methyl ester of butyleneglycophosphorous acid yielded, after a somewhat slower reaction, 1,6,10-trioxa-2,9-dimethyl-[(5-methoxy)-5-phosphaspiro-(4,5)]-2-decene, b.p. 73-74°/10⁻³ mm, n_D^{20} 1.4745, d_4^{20} 1.1707. The reactions were carried out with exclusion of moisture, under continuous stirring, keeping the temperature below +25°C. The products were found to hydrolyze easily in air but were stable enough to be distilled under high vacuum.

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USSR

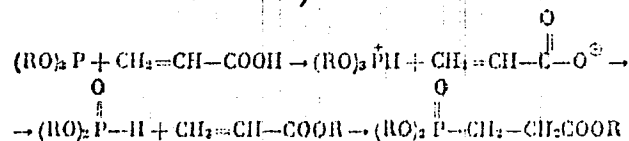
UDC 542.91:661.713.1

GAZIZOV, T. Kh., ~~MAREYEV, Yu. M.~~ VINOGRADOVA, V. S., FUDOVIK, A. N., and
AREUZOV, B. A., Chemistry Institute imeni A. M. Butlerov, Kazan' State
University imeni V. I. Ul'yanov-Lenin, and Institute of Organic and Physical
Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Interaction of Trialkyl Phosphites with α, β -Unsaturated Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71,
pp 1259-1266

Abstract: Experimental material indicates that the addition of trialkyl phosphites to α, β -unsaturated acids may proceed by preliminary protonation of the trialkyl phosphites by the unsaturated acids, with subsequent addition of the resultant dialkylphosphorous acids to esters of the unsaturated acids to give trialkyl esters of the corresponding β -phosphonocarboxylic acids, according to the scheme



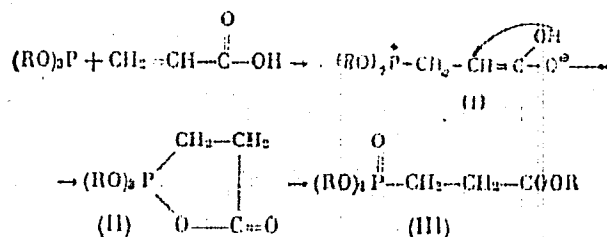
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- 75 -

USSR

GAZIZOV, T. Kh., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1259-1266

It is also possible that these reactions proceed according to the scheme suggested by V. A. KUKHTIN and G. Kh. KAMAY, viz.



but without the formation of an intermediate cyclic product of the phosphorane type. The reaction may proceed simultaneously according to both schemes.

The interaction of trimethyl phosphite with acrylic acid, along with trimethyl ester of β -phosphonopropionic acid, gives a small amount of the cyclic anhydride of methyl ester of β -phosphonopropionic acid. The latter is obtained in much greater quantities in the presence of acetic acid. The

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USSR

GAZIZOV, T. Kh., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1259-1266

formation of an analogous cyclic anhydride is observed in the interaction of triethyl phosphite with methacrylic acid, as well as in the presence of acetic acid.

The authors thank E. I. COL'LEARE for taking the NMR spectra.

3/3

- 36 -

MAREYEVA N. S.

JPRS 55687
12 APR 1972

UDC 628.19:[543.3:543.87]:629.78.048

INVESTIGATIONS FOR DETERMINING THE OXIDABILITY OF REGENERATED WATER

(Article by V. A. Kravchikov and N. S. Mareyeva; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 1, pp 23-31, 1972, submitted for publication 27 April 1970)

Abstract: The significance of the data describing oxidability of reclaimed water obtained by different techniques for measuring oxidability of surface, ground and sewage waters was evaluated. The kinetics of oxidation of impurities occurring in the water condensate resulting from urine distillation by the potassium bichromate method was studied. The relationship between bichromate oxidability and reaction medium acidity, as well as other factors, was investigated. It was concluded that various methods of assaying oxidability may be employed for analysis of reclaimed water.

The method of analysis of water for oxidability is used in the International Drinking Water Standards as one of the methods for determining its contamination by organic impurities. This same method of analysis is recommended in the literature for evaluating the degree of contamination of surface, ground and sewage waters. The water regenerated from the products of man's vital functions, whose collection is usually based on phase and sorption processes, differs sharply in the composition of impurities from natural waters. Among the potentially possible impurities, in addition to ammonium compounds, there are alcohols, ethers, aldehydes, ketones, acids of the fatty series, and some other organic compounds. These impurities are capable of interacting with strong oxidizers in aqueous solutions. Accordingly, the oxidability of regenerated water is the principal criterion used in determining the degree of its total contamination, a criterion more important than in the evaluation of contamination of water of natural origin.

A number of methods are used in determining the permanganate and bichromate oxidability for evaluating the contamination of natural and sewage water. The investigations revealed that not all these methods are suitable for evaluating regenerated water.

USSR

UDC 621.376.53(088.8)

BOLOVINTSEV, YU. M., MAREYN, R. L.

"Peak Detector with a Discharge Circuit"

USSR Author's Certificate No 251023, Filed 8 Aug 68, Published 2 Feb 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D49P)

Translation: This author's certificate introduces a detector consisting of a diode, a storage capacitor, an output emitter repeater and a discharge semiconductor triode included with respect to a circuit with a common emitter. In order to improve the accuracy of operation of the device and increase the thermal stability, the collector of the discharge transistor is connected to the collector of the output emitter repeater.

1/1

1/2 015 UNCLASSIFIED
TITLE--MANUFACTURE OF GALVANIC CELLS -U- PROCESSING DATE--16OCT70
AUTHOR--(05)-NABIULIN, F.K., BUZOVA, Z.M., GERTYK, E.M., MARFIN, B.V.,
RABINOVICH, V.A.
COUNTRY OF INFO--USSR
SOURCE--U.S. 3,506,750
DATE PUBLISHED--14APR 70
SUBJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE)
TOPIC TAGS--PATENT, GEL, BATTERY ELECTROLYTE, BATTERY ELECTRODE,
ELECTROLYTIC CELL, VALVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1798 STEP NO--US/0000/10/000/000/0000/0000
CIRC ACCESSION NO--AA0109759
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AA0109759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PREGELLED ELECTROLYTE AND NEG. ELECTRODE MATERIAL ARE SIMULTANEOUSLY PRESSED THROUGH A FUNNEL SHAPED FEEDER INTO THE POS. ELECTRODE VESSEL BY A PISTON AND VALVE ARRANGEMENT. AT THE SAME TIME, A CURRENT COLLECTOR IS FED THROUGH THE CENTRAL PORTION OF THE FEEDER. BY MOLDING THE ION CONDUCTING DIAPHRAGM AND THE NEG. ELECTRODE IN THE CELL CASING, INTERNAL SHORTING BETWEEN THE CELL ELECTRODES IS ELIMINATED.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--GALVANIC CELL MANUFACTURE BY EXTRUSION -U-

AUTHOR--(05)-NABIULLIN, F.K., SUZOVA, Z.M., GERTSYK, E.M., MARFIN, B.V.,
RABINOVICH, V.A.
COUNTRY OF INFO--USSR

SOURCE--BRIT. 1,190,586

DATE PUBLISHED--06MAY70

SUBJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE)

TOPIC TAGS--ELECTROLYTIC CELL, MANUFACTURING METHOD, EQUIPMENT EXTRUSION,
ELECTRODE, ELECTROLYTE, PATENT

CENTRL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1072

STEP NO--UK/0000/T0/000/000/0000/0000

CIRC ACCESSION NO--AA0131619

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AA0131619
ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. A PROCESS IS DESCRIBED FOR FILLING
CELLS, HAVING A CENTRAL CURRENT COLLECTOR, BY THE EXTRUSION OF ELECTRODE
ACTIVE MATERIAL AND GEL ELECTROLYTE THROUGH COAXIAL NOZZLES.

UNCLASSIFIED

1/3 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--OPTICAL AND MOESSBAUER SPECTRA OF IRON IN TOURMALINES -U-

AUTHOR--(05)--MARFUMIN, A.S., MKRTCHYAN, A.R., NADZHARYAN, G.N., NYUSSIK,
YA.M., ~~PLATONOV, A.N.~~
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. GEOL. 1970, (2), 146-50

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--ABSORPTION BAND SPECTRUM, IRON, ALUMINUM SILICATE MINERAL,
CRYSTAL, MOESSBAUER SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1541

STEP NO--UR/0011/70/000/002/0146/0150

CIRC ACCESSION NO--AP0125168

UNCLASSIFIED

2/3 016

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0125168

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO ABSORPTION BANDS OF VARIOUS INTENSITY IN THE VISIBLE (13,000-15,000 CM PRIME NEGATIVE1) AND IR (8500-9500 CM PRIME NEGATIVE1) REGIONS WERE OBSD. IN GREEN TOURMALINE CRYSTALS. THE OPTICAL ABSORPTION SPECTRA WERE INTERPRETED BY ASSUMING THAT IONS OF FE PRIME2 POSITIVE ARE SITUATED MOSTLY IN MG OCTAHEDRONS WITH LOCAL SYMMETRY OF APPROX. D SUB4H. MEANINGFUL DIFFERENCES WERE OBSD. IN POLARIZED SPECTRA OF BLACK TOURMALINES. THE SPECTRA ALONG OMEGA (ORDINARY RAY) WERE CHARACTERIZED BY A WIDE ABSORPTION BAND AT SIMILAR TO 12,000 CM PRIME NEGATIVE1 WHEREAS SPECTRA ALONG EPSILON (EXTRAORDINARY RAY) WERE SIMILAR TO ABSORPTION SPECTRA OF GREEN TOURMALINES. IN ADDN. A DIFFUSE BAND AT 18,000 CM PRIME NEGATIVE1 WAS OBSD. IN SPECTRA OF THE BLACK CRYSTALS. THE ABSORPTION BAND AT SIMILAR TO 12,000 CM PRIME NEGATIVE1 IS RELATED TO THE PRIMES A SUBIG YIELDS PRIMES D SUB6G TRANSITION, THE ONLY ALLOWED ONE FOR FE PRIME2 POSITIVE IN A TRIGONAL FIELD. THIS INDICATED THAT A PART OF FE PRIME2 POSITIVE IN THE HIGH FE BLACK TOURMALINES ENTERS INTO THE AL OCTAHEDRONS WITH LOCAL SYMMETRY OF SIMILAR TO C SUB3V. THE MG OCTAHEDRONS ARE THE OTHER POSSIBLE POSITIONS OF FE IN BLACK TOURMALINES AS INDICATED BY THE SIMILAR CHARACTER OF THE OPTICAL SPECTRA ALONG EPSILON IN BLACK AND GREEN CRYSTALS. MOESSBAUER SPECTRA OF PRIME57 FE IN TOURMALINES INDICATED THAT FE PRIME2 POSITIVE OCCUPY IN BLACK TOURMALINES 2 NONEQUIV. OCTAHEDRON POSITIONS DIFFERING NOTICEABLY FROM EACH OTHER IN PARAMETERS OF MOESSBAUER SPECTRA. BOTH POSITIONS ARE SIMILAR TO THOSE OF FE PRIME2 POSITIVE IN GREEN TOURMALINES.

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... IN A SINGLE OCTAHEDRAL POSITION WITH TETRAGONAL
DISTORTION (MG, OCTAHEDRONS). FE IS PRESENT IN BLACK TOURMALINES IN 2
OCTAHEDRAL POSITIONS WITH TETRAGONAL (MG, OCTAHEDRONS) AND TRIGONAL
DISTORTIONS (AL, OCTAHEDRONS). THE AMT. OF FE IN AL, OCTAHEDRONS OF
BLACK TOURMALINES IS MUCH HIGHER THAN IN THE GREEN VARIETIES. THIS
EXPLAINS THE DIFFERENCES IN THE OPTICAL ABSORPTION SPECTRA OF
DIFFERENTLY COLORED CRYSTALS. FACILITY: INST. GEOL. RUD.
MESTGROZH., PETOGR., MINER. GEOKHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--KINETICS OF THE SETTING OF LOW MOLECULAR WEIGHT ISOPRENE NITRILE
COPOLYMERS STUDIED BY A SPECTRAL TECHNIQUE -U-
AUTHOR--(02)-RUSAKOVA, K.A., MARGARITOVA, M.F.

COUNTRY OF INFO--USSR

SOURCE--VVSOKOMOL. SOEDIN., SER. A. 1970, 12(3), 520-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--MOLECULAR WEIGHT, ISOPRENE, NITRILE, COPOLYMER, ACRYLONITRILE,
BENZOYL PEROXIDE, TRIETHYLAMINE, HARDNESS, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1187

STEP NO--UR/0459/70/012/003/0520/0527

CIRC ACCESSION NO--AP0116652

UNCLASSIFIED

3/3 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201920016-8

ABSTRACT/EXTRACT--COMPARISON OF THE DATA ON OPTICAL AND MOESSBAUER
SPECTRA OF NATURAL TOURMALINES SHOWS THAT

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT79

CIRC ACCESSION NO--AP0116652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HARDENING KINETICS OF ISOPRENE NITRILE COPOLYMERS (I) (PREPD, BY TELOMERIZATION IN CCl SUB4 SOLN.) WITH CH SUB2:CHCN (II) IN THE PRESENCE OF BZ SUB2 O SUB2-PHNME SUB2, BZ SUB2 O SUB2-ET SUB3 N, AND (HOCH SUB2 CH SUB2) SUB3 N-BZ SUB2 O SUB2 SYSTEMS WAS STUDIED BY IR SPECTROSCOPY AT 2238 MINUS 283 CM PRIMENEGATIVE1. THE HARDENING RATES OF I WERE DETD. AS A FUNCTION OF INITIATOR CONC. AND ITS CHEM. STRUCTURE, AND OF II CONTENT IN I. THE ACTIVATION ENERGY OF HARDENING IN THE PRESENCE OF BZ SUB2 O SUB2 AND BZ SUB2 O SUB2-ET SUB3 N WAS 9.8 AND 5.4 KCAL-MOLE, RESP. THE HARDENING RATE AND THE DEGREE OF HARDENING DEPENDED ON THE LOCATION AND LENGTH OF II UNITS.

FACILITY: MOSK. TONKOL KHM. TEKHOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UTC 538.245

KALININ, V. M., ~~MARGARYAN, A. V.~~ and DUNAYEV, F. N., Ural State University
imeni A. M. Gor'kiy

"Magnetization and Magnetostriction of Iron-Nickel Alloys in Strong Magnetic Fields"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1175-1181

Abstract: An experimental investigation was made of mathematical dependences describing the behavior of magnetization and magnetostriction of ferro-nickel alloys in strong magnetic fields. The anisotropy constant K_1 and the magnetostriction constants λ_{100} and λ_{111} were determined for Fe-Ni alloys with body-centered cubic lattice and for Invar alloys. The constants of magnetic and magnetostrictive susceptibility of the para-process were specified for alloys with 10-60 % Ni. The magnetization saturation is characterized in the differential form

$$k = \frac{A}{H^2} + \frac{B}{H^3} + \frac{C}{H^4} + \dots + k_p,$$

where k =magnetic susceptibility, k_p =susceptibility of the para-process, and A, B, C are coefficients characterizing different magnetization mechanisms in a magnetic field. An anomaly of the concentration dependence of the coefficient $1/2$

USSR

KALININ, V. M., et al., Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1175-1181

A was disclosed. It is supposed that the nature of the member A/H^2 , according to the rule of the magnetization approach to saturation, is not related to the presence of nonuniform stresses, but to the presence of a heterogeneous magnetic structure dependent on the composite interaction. Two figures, one table, eleven formulas, seventeen bibliographic references.

2/2

- 29 -

crystalline 2-methyl-3-(3-chlorobuten-2-yl-1)-4-hydroxyquinoline-6-carboxylic acid (II), m.p. 314-316°. To 3.2 g of (I) 10 ml of phosphorus oxychloride is added, the mixture is heated for 3 hrs. excess phosphorus oxychloride is removed, ice water is added and the mixture neutralized to yield 2-methyl-3-(3-chlorobuten-2-yl-1)-4-chloro-6-carbethoxyquinoline (III), m.p. 102-103°. To a heated solution of (III) in alcohol, alcoholic NaOH is added, refluxed for 2 hrs, the alcohol is evaporated, water is added, and neutralized to yield

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USSR

UDC 547.833.6.9

GYUL'BUDAGYAN, L. V., MARGARYAN, N. A., and DURGARYAN, V. G., Yerevan State University

"New Derivatives of 4-Quinaldinol. XVII. 2-Methyl-3-(3-chlorobuten-2-yl-1)-4-hydroxyquinoline-6-carboxylic acid and Some of Its Reactions"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1681-1682

Abstract: Following reactions are reported. Cyclization of ethyl ether of 2-(3-chlorobuten-2-yl-1)-3-(p-carboethoxyvanilino)-crotonic acid by heating it in

USSR

GYUL'BUDAGYAN, L. V., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1681-1682

2-methyl-3-(3-chlorobuten-2-yl-1)-4-chloroquinoline-6-carboxylic acid (IV), m.p. 162. To obtain 1-(2-methyl-4-hydroxy-6-carboxyquinolinyl-3)butanone-3, m.p., 272-273°, (II) was dissolved in sulfuric acid and heated to 50° until all HCl formed has been removed. The mixture was then diluted with water, neutralized, and the product precipitated. Analogously 1-(2-methyl-4-chloro-6-carboxyquinolinyl-3)butanone-3 was obtained from (IV).

2/2

- 62 -

USSR

UDC 621.378.385

MARGULIS, V. M., MARGOLIN, A. D., Institute of Chemical Physics of the USSR
Academy of Sciences, Moscow

"Diffusion CO₂-Laser Theory"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol XLII, No 3, 1972, pp 647-649

Abstract: A study was made of the kinetics of the relaxation processes simultaneously with the processes of diffusion mixing of the gases in a CO₂-laser. The distribution of the inverse population of the CO₂ molecules was calculated on the basis of an approximate analysis of the interaction kinetics during diffuse mixing of plane-parallel jets of vibrational-excited nitrogen (the auxiliary gas) and unexcited carbon dioxide (the working medium). From the solution of the equations describing the mixing process, it follows that the formation of the inverse population takes place mainly in the nitrogen jet. Behind the diffusion front of the CO₂ molecules, a domain of vibrational-excited CO₂ molecules -- a type of "excitation wave" -- is propagated in the direction of the excited nitrogen. The resonance pumping of the vibrational energy from the N₂^{*} to the CO₂ leads to the formation and growth of the inverse population of CO₂ molecules. However, with time the deactivation of the excited CO₂ molecules

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USSR

MARGULIS, V. M., et al., Zhurnal Tekhnicheskoy Fiziki, Vol XLII, No 3, 1972,
pp 647-649

as a result of inelastic collision processes becomes all that is significant.
The amplitude of the excitation wave decreases, and its width increases.

2/2

- 145 -

USSR

UDC:536.468

MARGOLIN, A. D., MARGULIS, V. M., SOLOV'YEV, N. V., Moscow

"Theory of Combustion of Liquid-Filled Porous Explosives"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 272-276

Abstract: The burning of porous explosives filled with an inert liquid develops in two combustion modes: laminar and turbulent. In the turbulent mode, the flame penetrates into the porous charge, and the liquid is ejected from the pores. The rate of turbulent combustion is many times greater than that of laminar combustion. Turbulent combustion is also observed in the combustion of two-phase charges consisting of grains of an oxidizer, the spaces between which are filled with a liquid fuel. This work presents an experimental and theoretical study of the combustion of a simple model of a porous charge -- a slit charge consisting of two flat parallel plates with liquid poured between them. Under certain conditions, the flat surface of the liquid becomes unstable, waves are formed, forming droplets and streams, carried away by the stream of combustion products. Combustion then penetrates

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USSR

UDC:536.468

MARGOLIN, A. D., MARGULIS, V. M., SOLOV'YEV, N. V., Novosibirsk, Fizika
Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 272-276

into the depth of the slit. The experimentally measured values of turbulent combustion speed were lower than the theoretically calculated values, resulting from the fact that the slit was filled with kerosene, which wets the powder of the plates, as water does not. This results in the formation of a screening liquid film on the surface of the plates, which decreases the combustion rate.

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27

USSR

UDC:536.468+662.511.1

KRASNOV, Yu. K., MARGULIS, V. M., ~~MARGOLIN, A. D.~~, POKHIL, P. F., Moscow

"Rate of Penetration of Combustion Into the Pores of a Charge of Explosives"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 290-295

Abstract: Under certain conditions, porous explosives burn at very high speeds, resulting from the fact that the hot combustion products preceding the normal combustion front penetrate into the pores of the charge and heat them. The critical conditions of penetration of burning into pores have been studied earlier. This work studies the question of the rate of penetration of combustion into the pores of an explosive charge. The experimental study was performed by placing cylindrical specimens of ballistic powder 40 mm in length with channels 1, 1.5, 2.5 and 4 mm in diameter and wall thicknesses of 0.5-1.5 mm in a constant pressure bomb. As the powder burned, the level of fluid filling the pore dropped as the fluid was forced out of the pore through a thin connecting tube to the space outside the bomb. The experiments revealed that the rate of heating of the wall of the powder channel was not equal to the rate of penetration of combustion

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29

USSR

UDC:536.468+662.311.1

KRASNOV, Yu. K., MARGULIS, V. M., MARGOLIN, A. D., POKHIL, P. F., Novosibirsk, Fizika Goreniva i Vzryva, Vol. 6, No. 3, Sep 70, pp. 290-295

products into the channel. The heating process lagged behind penetration of the combustion products. Expressions produced to describe the rates of movement indicate that the relationship between the rates of gas movement and ignition front is independent of the rate of penetration of combustion products into the channel. In the case of ignition of a smooth wall, the rate of propagation of the ignition front is independent of channel diameter.

2/2

1/2 053 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MEASUREMENT OF THE ACOUSTIC CONDUCTIVITY OF A BURNING SOLID
PROPELLANT SURFACE -U-
AUTHOR-(04)-MARGOLIN, A.D., SVETLICHNYI, I.B., POMIL, P.F., TSIRULNIKOV,
A.S.
COUNTRY OF INFO--USSR
SOURCE--PMTF ZHURNAL PRIKLADNOI MEKHANIKI I TEKHNICHESKOI FIZIKI,
JAN.-FEB. 1970, P. 149-155
DATE PUBLISHED-----70

SUBJECT AREAS--PROPULSION AND FUELS, PHYSICS

TOPIC TAGS--SOLID PROPELLANT, MEASUREMENT, SURFACE PROPERTY, ACOUSTIC
MEASUREMENT, PROPELLANT BURNING RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1543

STEP NO--UR/0207/70/000/000/0149/0155

CIRC ACCESSION NO--AP0118526

UNCLASSIFIED

2/2 053

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118526

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT AND APPLICATION OF TWO METHODS OF MEASURING THE ACOUSTIC CONDUCTIVITY OF A BURNING SOLID PROPELLANT SURFACE NAMELY, THE METHOD OF CRITICAL CONDITIONS AND THE VARIABLE SURFACE METHOD. THE METHOD OF CRITICAL CONDITIONS IS BASED ON MEASURING THE LIMIT OF SELF EXCITATION OF UNSTABLE COMBUSTION IN RESONATORS OF SIMPLE SHAPE THE ACOUSTIC LOSSES OF WHICH ARE RELIABLY CALCULATED. THE VARIABLE SURFACE METHOD CONSISTS IN MEASURING THE RATE OF INCREASE OR DECREASE IN THE AMPLITUDE OF THE OSCILLATIONS IN A T CHAMBER DURING COMBUSTION OF A SPECIMEN OF SOLID PROPELLANT WITH A BURNING SURFACE THE AREA OF WHICH VARIES IN TIME.

UNCLASSIFIED

Acoustics

USSR

UDC: 534

SVETLICHNYI, I. B., MARGOLIN, A. D., KUZNETSOV, A. A., PORHEL, P. F.,
MYSOV, V. G.

"Direct Method of Measuring the Acoustic Conduction of the Burning Surface
of Powder"

Fiz. aerodispers. sistem. Mezhved. nauch. sb. (Physics of Aerodisperse
Systems. Interdepartmental Scientific Collection), 1971, vyp. 4, pp 84-92
(from RZh-Fizika, No 6, Jun 72, Abstract No 6Zh524)

Translation: A direct method is developed for measuring acoustic conduc-
tivity of a burning surface as the ratio of the change in the velocity of
outflow of combustion products from the surface to the pressure in the
acoustic wave at the burning surface. The pressure is measured by a piezo-
electric transducer, and the acoustic velocity at the burning surface is
determined by an electromagnetic flowmeter system with transverse magnetic
field in a tube of circular cross section with insulated walls. The high-
-temperature ionized products of gunpowder combustion acted as the conduct-
ing medium. The test specimen of powder was placed in the tube together
with a noise emitter which generated plane longitudinal waves. Measurements

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USSR

SVETLICHNYY, I. B. et al., Fiz. aerodispers. sistem Mezhev. nauch. sb., 1971, vyp. 4, pp 84-92

could be made both at fixed and variable pressures and signal frequencies. A theory of the method is developed, and a theoretical analysis and experimental study are made of the effect of various factors on measurement results. The dimensionless acoustic conduction of the burning surface of nitroglycerin powders is measured, and satisfactory agreement with the results of measurements by other methods is obtained. Authors' abstract.

USSR

UDC: 537.266+537.311.33/:/537+525

TSEDRIK, M. S. and MARGOLIN, L. N.

"Dielectric Permeability of Triglycerine Sulphate Monocrystals in a Strong Electric Field"

Minsk, Doklady Akademii nauk BSSR, Vol. 14, No. 9, 1970, pp 802-805

Abstract: As a ferroelectric material, the behavior of triglycerine sulphate in a strong electric field has been insufficiently studied. The purpose of this article is therefore to investigate the conditions of the growth of such crystals on the change in their dielectric permeability in such fields. The measurements were made on an a-c bridge, for capacitances within the range of 40-20,000 pf, using specimens cut at right angles to the polar Y axis. The specimens were rectangular in shape, with an area of 0.6-1.2 cm² and 1.4-1.5 mm thick, subjected to a voltage of 50 Hz in frequency. It was found that in a weak electric field, the permeability rises slowly at first; as the field is increased, the permeability rises more sharply, achieving a maximum value at some particular level

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USSR

TSEDRIK, M. S. and MARGOLIN, L. N., Doklady Akademii nauk BSSR, Vol 14, No 9, 1970, pp 802-805

of the a-c voltage applied. Curves are given showing the variation in permeability under electric fields of various intensities for different temperature levels. A table of the parameters of the material for different conditions of crystal growth is also given. The authors are associated with the Institute of Solid State Physics and Semiconductors of the Belorussian Academy of Sciences, and the Minsk Pedagogical Institute imeni A. M. Gor'kiy.

2/2

- 87 -

USSR

UIC 627.832:532.533

AL'TSHUL', A. D., MARGOLIN, M. SH.

"Distribution of Peripheral Velocities in the Vortex Funnel Above a Horizontal Opening"

Izv. vyssh. uchebn. zavedeniy. Str-vo i arkhitekt. (News of the Higher Institutions of Learning. Construction and Architecture), No 9, 1970, pp 101-105 (from RZh-Elektrotehnika i Energetika, No 2, Feb 71, Abstract No 2 D64)

Translation: The universal form of the generalized law of rotation is obtained with the help of the earlier obtained dimensionless function characterizing funnel formation and the Rayleigh method. The region of applicability of this law and the dependence of the exponent and constant in this law on the flow rate coefficient of the opening are investigated. The distribution of the peripheral velocities vertically is considered experimentally. A numerical example of calculating the peripheral velocities in a vortex gradient flow meter is presented. There are 4 illustrations, 3 tables and a 10-entry bibliography.

1/1

Hydraulic

USSR

UDC 627.841.002.5(088.8)

AL'TSHUL', A. D., MARGOLIN, M. SH.

"Fluid Flow Rate Regulator for High-Head Hydraulic Mains"

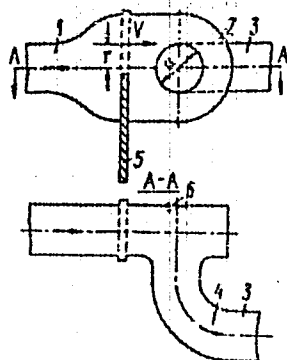
USSR Author's Certificate No 271044, filed 8 Jan 68, published 12 Aug 70
(from RZh-Elektrotehnika i Energetika, No 2, Feb 71, Abstract No 2 D161 P)

Translation: A regulator is proposed in which, in order to decrease the operating losses and facilitate the handling of the emergency gates, the hydraulic main is equipped with a blind vortex chamber 1 (see the figure) executed in the form of a local blind expansion of the line to the chamber 2 and connected by means of an elbow joint 3 to the continuation of the line 4. A flat emergency gate 5 is shifted along horizontal grooves at the input to the chamber. The valve 6 for water intake, which opens when the pressure drops inside the chamber, is placed above the input to the elbow in the cavity of the chamber ceiling. The end wall of the chamber is a semicircle coaxial with the hole entering the elbow 3. The axes of the chamber 1 and the line 2 are joint. In case of emergency rupture of the line 4 and a sharp increase in flow velocity, the drive of the emergency gate 5 is put into operation. The gate begins to cover the inlet to the chamber 1. Here, as a result of asymmetry of approach of the water above the opening of the elbow 3, an

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USSR

AL'TSHUL', A. D., et al., USSR Author's Certificate No 271044, filed 8 Jan 68,
published 12 Aug 70



intense vortex funnel is created in the chamber 1, which increases the drag at the inlet 2 to the elbow as a result of which the emergency gate is unloaded appreciably, and the conditions of emergency covering of the line are facilitated. The vortex funnel which lowers the pressure in the chamber 1 above the inlet to the elbow 3 opens the valve 6 to let in air and relieve the vacuum. When covering tunnels >1.0 m in diameter, the input cross section of the chamber can be separated by bulkheads into two or several spans, and one of the flat emergency gates can be replaced by a disk. The proposed regulator can also be used for operational closing of water gates and for partial covering of their cross sections. There is 1 illustration.

AA0040723

Margolin, S.K.M.

UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

242339 MOLTEN METAL VESSEL WEIGHER where the vessel

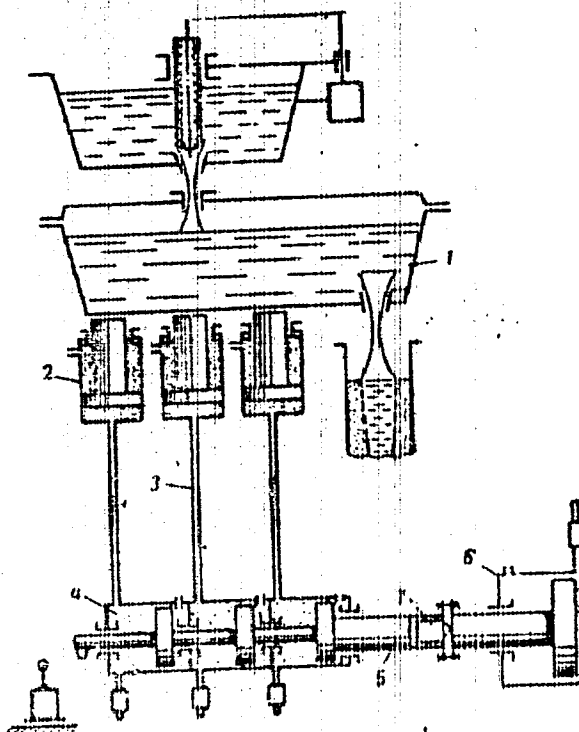
(1) is on hydraulic rams (2) coupled to a portioner (4) and rod (5), the line between this and the ram (6) including the weigher pickup (7). With the ram (6) on power it moves the rod (5) to a fixed end position. Medium from the portioner flows along the lines (3) to the lifting rams (2) which raise the vessel and contents into the weighing position. Force equal to the weight of the vessel and metal is transmitted via the rams, lines, and medium and the rod onto the power ram (6): this holds the vessel and is fixed by the pick up which indicates the weight.

9.6.66 as 1081433/22-2. ZHIDOVINOV, V.A. et al. METAL
PLANTS PLANNING INST. (8.9.69) Bul 15/25.4.69.
Class 31b²r. Int.Cl.B 22d.

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AA0040723

AUTHORS: Zhidovinov, V. A.; Likhberman, Ya. N.; Margolin, Sh. M.;
and Rutus, M. V.

Gosudarstvennyy Soyuznyy Institut po Proyektirovaniyu
Metallurgicheskikh Zavodov

19750370

USSR

UDC 669.71.074.2

MARGOLIN, Ye. V., BURKAT, V. S., KLYUSHKIN, V. P., CHEIKASSKIY, M. L.

"Development of a Method for the Determination of Drop Transfer From Wet Gas Purification Apparatus in Aluminum Production"

Tr. Vses. N-i. Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp. 168-176. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G162 by the authors).

Translation: A review is presented of existing methods for determination of drop transfer. A new method is suggested, recommended for use both in testing of industrial wet purification apparatus and for organization of periodic testing of drop transfer. The accuracy of the method is quite high in determining drop transfer of up to $1.2 \text{ g/m}^3 \text{ s. t. p.}$ 3 figs; 2 tables.

1/1

USSR

UDC: 621.391:519.2

MARGOLIN, Yu. N.

"Resistance to Interference of a Receiver of FM Signals With Follow-up Heterodyne When Subjected to Jitter"

V sb. Metody pomekhoustoychivogo priyema ChM i FM (Methods of Interference-Free FM and FM Reception--collection of works), Moscow, "Sov. radio", 1970, pp 165-176 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A47)

Translation: An investigation is made of the resistance to interference of an FM demodulator with follow-up heterodyne subjected to jitter. An analytical relationship is found between the input and output signal-to-noise ratios of a demodulator with follow-up heterodyne. Formulas are found for plotting the threshold curves of an FM demodulator with follow-up heterodyne both for multichannel telephony and for television. Parameters and experimental threshold characteristics are given for demodulators with follow-up heterodyne. Theoretical threshold curves are given for these same demodulators. Resumé.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTRON DIFFRACTION INVESTIGATION OF THE BOND STRENGTH IN AN IONIC
COMPOUND -U-
AUTHOR-(02)-BUNTAR, A.G., MARGOLINA, A.F. *M*

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED). 1970, 15(3), 359-63

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL BONDING, ELECTRON DENSITY, SODIUM COMPOUND, POTASSIUM
COMPOUND, FLUORIDE, BROMIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0363

STEP NO--UR/01B5/10/015/003/0359/0363

CIRC ACCESSION NO--AP0137467

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0137467
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF ELECTRON DIFFRACTION TO
DET. BOND STRENGTHS IS DISCUSSED. THE DEPENDENCE OF THE REFLECTION
INTENSITIES OF LAMBDA WAS STUDIED FOR NAF, NABR, AND KF FILMS. FOR
CRYSTALLITES SMALLER THAN OR EQUAL TO 100 ANGSTROM IN SIZE, THE
SCATTERING OF THE ELECTRON WAVES MAY BE CONSIDERED TO BE KINEMATIC.
ELECTRON D. DISTRIBUTIONS WERE CALCD. FOR THE MAIN CRYSTALLOGRAPHIC
DIRECTIONS. THE BOND IN NAF IS PROBABLY PARTIALLY COVALENT.
FACILITY: KOMMUNAR. GORNOMETAL. INST., KOMMUNAR, USSR.

UNCLASSIFIED

USSR

UDC: 616.24-002-022.6-02:616.986.73-092.2792

TOLYBEKOV, A. S., MARGOLINA, F. A., and VISHNYAKOVA, L. A., Laboratory of Pyrogens and Nonspecific Resistance, Division of General Pathology, Laboratory of Infectious Pathology, Division of Pathological Anatomy, Institute of Experimental Medicine, Academy of Medical Sciences USSR, and Division of Especially Dangerous Infections, Leningrad Institute imeni Pasteur

"Morphogenesis of Experimental Ornithosis Pneumonia"

Moscow, Arkhiv Patologii, Vol 32, No 11, 1970, pp 26-29

Abstract: Within 24 hours of intranasal infection of mice with the agent of ornithosis, the virus was found in the alveolar phagocytes, where it multiplied to form microcolonies of elementary particles. The virus was also found in the epithelial cells of the bronchi. The virus-containing cells at first showed no signs of degeneration, and there was no reaction in the adjacent cells. The polymorphonuclear leukocytes reacted only after the virus-filled macrophages were destroyed. They engulfed the viral particles released from the macrophages and then died themselves. The repeated cycles of viral growth in the macrophages and phagocytosis by the polynuclear leukocytes accounts for the protracted course of ornithosis pneumonia.

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USSR

UDC: 616.981.232-036.22-616.831.9-022-022.7-036.22

FAVOROVA, L.A., MIRONOVA, T.K., MARGOLINA, M.S., POKROVSKIY, V.I., VENCEROV, YU.YA., KOSTYUKOVA, N.N., AND IGNATOV, YU.I., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, and Central Institute of Epidemiology

"Epidemiological Analysis of Outbreaks of Epidemic Cerebrospinal Meningitis Report!"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 2, 1970, pp 95-100

Abstract: The incidence of cerebrospinal meningitis in the Soviet Union dropped over 25 years ago to a very low level and stabilized. Only isolated cases were reported until 1967-1968, when minor epidemics of the disease occurred in a number of inhabited places. These outbreaks had a number of features in common: frequency of mostly asymptomatic nasopharyngitis not detected by physicians, prevalence of the carrier state, infection mostly among children 12-20, especially those living under extremely crowded conditions in boarding schools, and occurrence in the fall and spring. The various control measures adopted halted the spread of the disease but not the carrier state, which persisted until the children returned to their homes for holiday vacations.

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Acc. Nr: **AP0044201**

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 2, pp 95-100

EPIDEMIOLOGICAL ANALYSIS OF OUTBREAKS
OF MENINGOCOCCUS INFECTION

REPORT I

Favorova, L. A.; Mironova, T. K.; Margolina, M. S.;
Pokrovskiy, V. I.; Vengerov, Yu. Ya.; Kolyukova, N. N.;
Ignatov, Yu. I.

The authors present materials concerning epidemiological and microbiological characteristics of outbreaks of meningococcus infection which occurred in 1967-1968 against the background of prolonged epidemiological welfare. The outbreaks, characterized by individual cases of the disease, widespread nasopharyngitis and carrier state, had a number of characteristic epidemiological signs (autumnospring seasonal prevalence, the patients' age range - from 12 to 20 years, and marked «nidality» of meningitis cases).

Strains of meningococci isolated from carriers differed in serological respect: along with types A, B and C there occurred many nonagglutinating strains, and also polyagglutinable and spontaneously agglutinating cultures.

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REEL/FRAME
19770687

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USSR

UDC 66.067.38:62-278

SAMSONOV, G. V., ROZHANSKAYA, T. I., MOSKVICHEV, B. V., MARSHOLINA, N. A.,
SELEKHOVA, G. B., KOZHEVNIKOVA, P. YE.

"Study of the Permeability of Ultrafiltration Diaphragms"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973,
pp 2589-2592

Abstract: The results are presented from a study of the physical-chemical properties of Soviet anisotropic diaphragms based on cellulose acetate: the permeability and filtration rates as functions of the concentration and pressure gradients and the composition of the solution. The degree of trapping of the material by a given diaphragm depends primarily on the molecular weight of the material. The filtration rate depends on the type of diaphragm, the magnitude of the pressure gradient, the concentration and composition of the filtered solution. The dimensions of the ultrafilter pores are estimated. Integral pore distribution curves with respect to dimensions in the active layer of the membrane are plotted and interpreted. The active layer of the tested diaphragm is characterized predominantly by pores corresponding with respect to permeability to materials with a macromolecule diameter of 20-40 Å. The performed studies make it possible efficiently to select ultrafilters suitable for the concentration of biological preparations of defined molecular weight.
1/1

USSR

UDC 62-50

MARGOLIS, D. S.

"Calculation of the Optimal Parameters of the Symbol Indication Unit for a Tube with Electromagnetic Deflection"

V sb. Optimiz. Issled. operatsiy. Bionika (Optimization and Operations Research. Bionics--collection of works), Moscow, Nauka, 1973, pp 117 - 122 (from RZh Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73 Abstract No 11 A 391)

Translation: This article examines several variations of the design of characteristics for the symbol unit of a visual display apparatus. The basic parameter is the number of symbols per frame. The reasons for choices of symbol generating techniques and methods of moving the beam from symbol to symbol are given. The buffer memory requirements are formulated. Two illustrations.

Abstract by the author.

1/1

- 18 -

Catalysis

USSR

UDC 541.128.12.13

BAKHMAN, N. N., LOBANOV, I. N., MARGOLIS, I. Ya., NIKIFOROV, V. S., and
SAKHAROV, M. M., Institute of Chemical Physics, Acad. Sc., USSR, Moscow

"Heterogeneous-Homogeneous Catalysis in the Combustion of Mixture Systems"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 5, Feb 72, pp 1107-1110

Abstract: Combustion rate of condensed mixture systems may be increased 2-2.5 fold by addition of small amounts of compounds of iron, chromium, copper, silicon, and other elements. Many of these compounds are known catalysts for deep oxidation of hydrocarbons and ammonia. It has been proposed that the entire mixture or at least considerable portion of it reacts at the surface of catalyst particles. To check this proposition, a theoretical calculation was derived for the rate of the catalyzed reaction. From theoretical considerations the conclusion was reached that a heterogeneous-homogeneous catalytic process takes place. Active products are formed on the surface of the catalyst particles, the active products even at low concentrations increase considerably the homogeneous reaction rate. Support for the heterogeneous mechanism of catalysis during combustion is found in the relationship between the combustion rate and the catalyst

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BAKHMAN, N. N., Doklady Akademii Nauk SSSR, Vol 202, No 5, Feb 72, pp 1107-1110

concentration. The effectiveness of the catalyst increases only at low concentrations. Further support for this mechanism rests on the fact that with small additions of the catalyst either an acceleration or inhibition of the combustion may occur --- a phenomenon impossible to explain by the reaction of the mixture on the surface of catalyst particles.

2/2

- 6 -

1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--KINETICS OF PROPYLENE OXIDATION ON A BISMUTHMOLYBDENUM CATALYST -U-
AUTHOR--(04)--GORSHKOV, A.P., GAGARIN, S.S., KOLCHIN, I.K., MARGOLIS, L.YA.
COUNTRY OF INFO--USSR
SOURCE--NEFTEKHIMIYA 1970, 10(1), 59-63
DATE PUBLISHED--70

M

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--CHEMICAL REACTION KINETICS, PROPYLENE, CATALYTIC OXIDATION,
FORMALDEHYDE, CHEMICAL LABELLING, CHEMICAL REACTION MECHANISM, CHEMICAL
REACTION RATE, CARBON ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1965

STEP NO--UR/0204/70/010/001/0059/0063

CIRC ACCESSION NO--AP0112929

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--09OCT70

2/2 014

CIRC ACCESSION NO--AP0112929

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MECHANISMS OF THE OXIDN. OF 4 SUB2
CO, ACH, ACRROLEIN, AND PROPYLENE WERE STUDIED BY USING PRIME14 C LABELED
COMPOS. THE OXIDNS. WERE CARRIED OUT AT 460DEGREES ON A BI-MO
CATALYST. RATE CONSTS. OF THE INDIVIDUAL REACTIONS ARE GIVEN.
MECHANISMS ARE PROPOSED FOR THE OXIDN. OF PROPYLENE. FACILITY:
INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MECHANISM OF REDOX PROCESSES TAKING PLACE IN SOLUTIONS OF SOME IRON
(III) COMPLEXES IN A FIELD OF ULTRASONIC WAVES -U-
AUTHOR-(02)-MARGULIS, M.A., MALTSEV, A.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 160-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REDOX REACTION, IRON COMPOUND, COMPLEX COMPOUND, ULTRASONIC
WAVE, PYRIDINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0759

STEP NO--UR/0456/70/004/002/0160/0168

CIRC ACCESSION NO--AP0119666

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119666

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE MECHANISM OF THE ULTRASOUND INITIATED REDN. OF $Fe(III)$ IN K SUB3 ($Fe(C SUB2 O SUB4) SUB3$) SOLNS. WAS STUDIED AND THE EFFECT OF THE CONC. OF H PRIME POSITIVE, C SUB2 O SUB4 PRIME2 NEGATIVE, AND ALPHA, ALPHA PRIME, BIPYRIDINE ON THE KINETICS OF THIS PROCESS WAS DETD. IN THE PRESENCE OF AR, THE COMPLETE TRANSFORMATION OF THE COMPLEX ($Fe(III)$) YIELDS ($Fe(II)$) WAS ORSD., BUT THE INITIAL RATE OF $Fe(III)$ REDN. IN AN AR ATM. IS LOWER BY A FACTOR OF 5 COMPARED WITH AN O ATM. IN AN O ATM. WITH INCREASING ACIDITY, THE INITIAL REDN. RATE DECREASED AS WELL AS THE STEADY STATE CONC. OF ($Fe(II)$). IN AN ATM. OF AR AND H, THE EFFECT OF ACIDITY DECREASES NOTICEABLY. IF IN THE SOLN. UNDER ULTRASONIC TREATMENT ALPHA, ALPHA PRIME, BIPYRIDINE IS ABSENT, THE AMT. OF $Fe(II)$ FORMED IS VERY LOW. IN THE PRESENCE OF A HIGH EXCESS OF OXALATE IONS, THE REDN. RATE OF $Fe(III)$ DECREASES SOMEWHAT. IN AN ATM. OF INERT GASES, THE REDN. OF $Fe(III)$ TAKES PLACE WITH PARTICIPATION OF H PRIME POSITIVE, E SUBAQ PRIME NEGATIVE, OH PRIME NEGATIVE, AND H SUB2 O SUB2. IN A H ATM., PRACTICALLY NO H SUB2 O SUB2 IS FORMED. IN AN O ATM., REACTIONS WITH PARTICIPATION OF O TAKE PLACE. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--ANIONS OF DINITROMETHYL COMPOUNDS. V. CRYSTAL STRUCTURE OF THE
POTASSIUM SALT OF PHENYLDINITROMETHANE -U-
AUTHOR-(04)-GRIGORYEVA, N.V., MARGOLIS, N.V., TSELINSKIY, I.V., SHOKHOR,
I.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 165-8
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTAL STRUCTURE, BENZENE DERIVATIVE, X RAY STUDY,
NITROMETHANE, ORGANOPOTASSIUM COMPOUND, CRYSTAL LATTICE, CONJUGATE BOND
SYSTEM, ANION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/0444

STEP NO--UR/0192/70/011/001/0165/0168

CIRC ACCESSION NO--AP0104057

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104057

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRUCTURE OF PHENYLDINITROMETHANE (I) WAS DETERMINED BY SINGLE CRYSTAL X RAY METHODS. THE MONOCLINIC LATTICE PARAMETERS ARE A 11.58, B 7.95, C 10.12 ANGSTROMS, AND BETA 99DEGREES; ZETA EQUALS 4; THE SPACE GROUP IS P2 SUB1-C. IN THE ANION, THE DIHEDRAL ANGLE BETWEEN THE PH RING AND THE N(1) MINUS C(1) MINUS N(2) PLANE IS 62DEGREES, AND THE C(1) MINUS C(4) LINE MAKES AN ANGLE OF SIMILAR TO 8DEGREES WITH THE N(1) MINUS C(1) MINUS N(2) PLANE. BOTH NO SUB2 GROUPS ARE ROTATED BY SIMILAR TO 10DEGREES ABOUT THE C AND N BONDS RELATIVE TO THE N(1) MINUS C(1) MINUS N(2) PLANE. CONJUGATION BETWEEN THE PH RING AND THE REMAINDER OF THE ANION CANNOT EXCEED 20PERCENT OF THE VALUE POSSIBLE IF THE ANION WERE PLANAR. MARY FRANCES RICHARDSON.

UNCLASSIFIED

USSR

UDC 591.185.34:577.37:597.82

MARGOLIS, S. E., Comparative Neurobiology of Vertebrates Group, Institute of Evolutionary Morphology and Ecology of Animals imeni A. N. Severtsova, Academy of Sciences USSR, Moscow

"Rhythmic Oscillations of Evoked Potentials and the Effect of Picrotoxin on Electrical Activity of the Olfactory Bulb in the Frog *Rana temporaria*"

Leningrad, Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, No 5, 1972, pp 560-562

Abstract: Rhythmic oscillations of evoked potential resulted from electrical stimulation of the ipsilateral and contralateral olfactory nerves and from direct stimulation of the surface of the olfactory bulb in *Rana temporaria*. In cases where rhythmic oscillations did not appear, especially after weak stimulation, they were recorded soon after the application of 0.3% picrotoxin solution to the olfactory bulb. Subcutaneous injection of 15 mg of picrotoxin failed to elicit or increase the rhythmic oscillations, but it did induce convulsions. Some 60 to 80 min after injection, slow negative waves arose either spontaneously or in response to stimulation of one of the olfactory nerves or lateral olfactory tract. The latent period became shorter as the effect intensified. The amplitude of these waves was independent of the force of the stimulus and obeyed the all-or-none law. The slow waves were usually 1/2

USSR

MARGOLIS, S. E., Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, No 5, 1972,
pp 560-562

accompanied by neuronal discharges whose latent period varied from neuron to neuron. The firing coincided with the separate phases of the slow waves or continued throughout. The slow waves persisted even after the olfactory bulb was isolated from the higher-lying centers.

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- 54 -

USSR

MARGULES, A. U.

"What's New in Experimental Techniques and Equipment for Determining Residual Stresses"

Moscow, Zavodskaya Laboratoriya, Vol XXXVII, No 4, 1971, pp 471-473

Abstract: An accelerated procedure for determining the residual stresses in steel rings by electrochemical dimensional machining consisting in localizing the electrochemical solution on given defined surfaces or sections of the machined part is described. Localization combined with removal of the products formed during this process insures directional removal of metal from the surface. This process is intensified by applying high-current densities (100-300 amps/cm²) and vigorous removal of the oxide film. A schematic of the device for studying the residual stresses and diagrams of the residual stresses formed when turning 40Kh steel with NS20M cermet and T15K6 hard alloy and by chemical pickling are presented.

The described procedure for determining residual stresses was also tested on rings made of OKhN3MSA steel machined with NS20M cermet plastics under various cutting conditions.

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MARGULES, A. U., Zavodskaya Laboratoriya, Vol XXXVII, No 4, 1971, pp 471-473

Comparison of the presented residual stress diagrams with analogous diagrams obtained when using other methods of removing a layer of metal shows that the proposed intense electrochemical pickling with a high-current density is not in itself the cause of occurrence of residual stresses resulting in uncontrolled experimental error.

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USSR

UDC: 621.317.341

MARGULEV, I. Ya.

"Limitation of Mismatch Errors in Measuring Large Attenuations"

Tr. VNII fiz.-tekhn. i radiotekhn. izmereniy (Works of the All-Union Scientific Research Institute of Physicotechnical and Radio Engineering Measurements), 1970, vyp. 2(32), pp 52-65 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5A205)

Translation: The paper outlines the principle of breaking down a channel made up of several attenuators when measuring their high overall attenuation. The procedure obviates additional errors due to mismatch. Four illustrations, one table, bibliography of two titles. Résumé.

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USSR

SAVVOV, V. I., MARGULIS, D. S.

"Synthesis of Display Systems on the Basis of Minicomputers"

Upravlyayushchiye Sistemy i Mashiny [Control Systems and Machines], 1972, No 1, pp 119-122 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V688, by the authors).

Translation: Certain problems of synthesis of a multiterminal display complex based on minicomputers are studied. A method of formal description of procedures for editing of data using the apparatus of equivalent matrix transforms is presented.

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USSR

UDC 681.142.4

MARGULIS, D. S., REZANOV, V. V., and SAVVOV, V. I.

"Series of Videoterminal Devices for Third-Generation Computers"

Kiev, Mekhanizatsiya i Avtomatizatsiya Upravleniya, No 4, 1971, pp 50-53

Abstract: This article is concerned with using the latest technical achievements to develop terminal devices and to carry out lengthy investigations of their design and use. The graphic data-display station consists of the following modular assemblies: a graphic cathode-ray display and an input block and information editor. This cathode-ray display is designed to convert coded messages from the computer into a visual equivalent in the form of points, segments of lines, circles or arcs, and symbols on the display screen. A system of information words is used to code the information. The authors graphically depict the mode of points and define the use of the two information words employed for this purpose. The vector mode is also shown graphically and described, the first pair of coordinates referring to the initial point. The first word has a content similar to the first word of the point mode, differing in that the operational characteristic is coded as 010. The fixed increment mode permits the authors to reproduce arbitrary
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USSR

MARGULIS, D. S., et al., Mekhanizatsiya i Avtomatizatsiya Upravleniya, No 4, 1971, pp 50-53

curves and to approximate them by a broken line with fixed intervals and a limited number of directions. The symbol mode permits reproduction of alphanumeric and symbolic information, beginning from an arbitrary point of the frame. The circle mode permits the reproduction of circles and arcs. The authors list in detail the composition of the vacuum-tube graphic display and group of possible editing operations. The article contains three figures.

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- 23 -

USSR

UDC: 534.1:629.7.0.035

LISS, A. YU. and MARGULIS, G. U.

"Using the Integrating Matrices Method for Calculating the Natural Vibrations of the Blade of an Airscrew Taking Into Consideration Bending in Two Planes and Torsion"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 1, 1973, pp 30-37

Abstract: The authors present a method for calculating the natural vibrations of a twisted beam (blade) in a centrifugal force field taking into consideration bending in two planes along with torsion. The method is based on the replacement of natural vibration differential equations for a beam by a system of algebraic equations by means of integrating matrices which are a modification of M.B. Vakhitov's integrating matrices. A comparison of the computation results with the exact solution shows the high degree of accuracy of the developed methodology.

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- 5 -

USSR

UDC: 656.015.42:691.54

AKHVERDOV, I. N. and MATGULIS, I. N., Institute of Construction and Architecture of the State Committee for Construction of the Byelorussian SSR

"Electrophysical Method for Determining the Porosity and Strength of Concrete"

Minsk, Doklady Akademii Nauk BSSR, Vol XVII, No 1, pp 36-39

Abstract: The authors propose a non-destructive method for controlling the quality of Portland cement and large filler based concrete using the electrophysical parameters P_b/P_R and the saturation of the porous material with $\text{Ca}(\text{OH})_2$ ion solution, where P is the specific, volumetric, electric resistance of the concrete whose capillary-porous space has been saturated by a liquid phase with the resistivity P_b . Methodology is presented for setting up calibration curves for the correlation between porosity, strength, and the electrophysical parameters of the concrete. Experimental data are given. It is shown that in comparison to the ultrasonic pulse method, the electrophysical method makes it possible to evaluate the quality of concrete with just a single calibration curve construction. The electrophysical method can be used for determining the quality of concrete both of assembled type and mass structures without resorting to destructive methods. Original article: three formulas, two figures, and three bibliographic entries.

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USSR

UDC 616.314-089.843-036.8

GUTNER, Ya. I., KUSHNIR, I. I., and ~~MARGULIS, R. Ya.~~, Polyclinic of the
Ministry of Foreign Trade USSR and Polyclinic No 12 of GUZM

"Long-Term Results of Tooth Replantation"

Moscow, Stomatologiya, No 1, 1972, pp 27-29

Abstract: Five-year follow-up of 53 persons who had one tooth each replanted showed that only 28 teeth had survived. Twenty-five had to be removed during the first 3 years because of inflammation, suppuration, or marked resorption of the roots. Fifteen of the surviving teeth exhibited pathology of the periodontium and surrounding tissues (gingival fistula, chronic infiltration of the mucosa, root resorption, looseness of the tooth). Thirteen were in good condition and served mostly as supports for bridges. Thus, replantation of teeth is not a satisfactory method of treating periodontitis. The operation should be reserved only for cases where conservative treatment has been ineffectual and where tooth preservation is dictated by the peculiar condition of the jaws.

1/1

Acc. Nr: AP0047197

Ref. Code: UR 0511

PRIMARY SOURCE: Stomatologiya, 1970, Vol 49, Nr 1, pp 34-35

Ya. I. Gutner, R. Ya. Margulis — ON SOME FEATURES PECULIAR TO THE
PROCESS OF RESORPTION IN REPLANTATION OF TEETH

Summary. The article contains clinico-roentgenological observations over some features specific to the development and localization of the process of resorption of the root in replantation of the tooth. The resorption process is characterized by that the destruction of the dental root occurs mainly in the pericervical portion, embracing circulariy this region of the root, as if detaching the crown from the root. The remaining part of the root retains its normal relation with the periodontium and alveolus.

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REEL/FRA
19790696

DI 2

Acc. Nr: **AP0043672**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, PP **635-640**

OSCILLATIONS OF ULTRASOUND ABSORPTION BY A THIN PLATE
IN A TRANSVERSE QUANTIZED MAGNETIC FIELD

B. A. Targer, V. A. Margulis

Absorption of ultrasound in a metallic film (thin plate) located in a transverse quantized magnetic field is considered. The effect of the boundaries on the ultrasound wave is taken into account. It is shown that giant absorption oscillations arise just as in the case of a longitudinal field in a massive sample.

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REEL/FRAME
19770076

21 DI

USSR

UDC 621.378.385

MARGULIS, V. M., MARGOLIN, A. D., Institute of Chemical Physics of the USSR Academy of Sciences, Moscow

"Diffusion CO₂-Laser Theory"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol XLII, No 3, 1972, pp 647-649

Abstract: A study was made of the kinetics of the relaxation processes simultaneously with the processes of diffusion mixing of the gases in a CO₂-laser. The distribution of the inverse population of the CO₂ molecules was calculated on the basis of an approximate analysis of the interaction kinetics during diffuse mixing of plane-parallel jets of vibrational-excited nitrogen (the auxiliary gas) and unexcited carbon dioxide (the working medium). From the solution of the equations describing the mixing process, it follows that the formation of the inverse population takes place mainly in the nitrogen jet. Behind the diffusion front of the CO₂ molecules, a domain of vibrational-excited CO₂ molecules -- a type of "excitation wave" -- is propagated in the direction of the excited nitrogen. The resonance pumping of the vibrational energy from the N₂^{*} to the CO₂ leads to the formation and growth of the inverse population of CO₂ molecules. However, with time the deactivation of the excited CO₂ molecules $1/2$

USSR.

MARGULIS, V. M., et al., Zhurnal Tekhnicheskoy Fiziki, Vol XLII, No 3, 1972, pp 647-649

as a result of inelastic collision processes becomes all that is significant. The amplitude of the excitation wave decreases, and its width increases.

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- 145 -

USSR

UDC:536.468

MARGOLIN, A. D., MARGULIS, V. N., SOLOV'YEV, N. V., Moscow

"Theory of Combustion of Liquid-Filled Porous Explosives"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 272-276

Abstract: The burning of porous explosives filled with an inert liquid develops in two combustion modes: laminar and turbulent. In the turbulent mode, the flame penetrates into the porous charge, and the liquid is ejected from the pores. The rate of turbulent combustion is many times greater than that of laminar combustion. Turbulent combustion is also observed in the combustion of two-phase charges consisting of grains of an oxidizer, the spaces between which are filled with a liquid fuel. This work presents an experimental and theoretical study of the combustion of a simple model of a porous charge -- a slit charge consisting of two flat parallel plates with liquid poured between them. Under certain conditions, the flat surface of the liquid becomes unstable, waves are formed, forming droplets and streams, carried away by the stream of combustion products. Combustion then penetrates

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USSR

UDC:536.468

MARGOLIN, A. D., MARGULIS, V. M., SOLOV'YEV, N. V., Novosibirsk, Fizika
Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 272-276

into the depth of the slit. The experimentally measured values of turbulent combustion speed were lower than the theoretically calculated values, resulting from the fact that the slit was filled with kerosene, which wets the powder of the plates, as water does not. This results in the formation of a screening liquid film on the surface of the plates, which decreases the combustion rate.

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27

USSR

UDC:536.468+662.311.1

KRASNOV, Yu. K., MARGULIS, V. M., MARGOLIN, A. D., POKHIL, P. F., Moscow

"Rate of Penetration of Combustion Into the Pores of a Charge of Explosives"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 290-295

Abstract: Under certain conditions, porous explosives burn at very high speeds, resulting from the fact that the hot combustion products preceding the normal combustion front penetrate into the pores of the charge and heat them. The critical conditions of penetration of burning into pores have been studied earlier. This work studies the question of the rate of penetration of combustion into the pores of an explosive charge. The experimental study was performed by placing cylindrical specimens of ballistic powder 40 mm in length with channels 1, 1.5, 2.5 and 4 mm in diameter and wall thicknesses of 0.5-1.5 mm in a constant pressure bomb. As the powder burned, the level of fluid filling the pore dropped as the fluid was forced out of the pore through a thin connecting tube to the space outside the bomb. The experiments revealed that the rate of heating of the wall of the powder channel was not equal to the rate of penetration of combustion

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- 29 -

USSR

UDC:536.468+662.311.1

KRASNOV, Yu. K., MARGULIS, V. M., MARGOLIN, A. D., POZHIL, P. F., Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 290-295

products into the channel. The heating process lagged behind penetration of the combustion products. Expressions produced to describe the rates of movement indicate that the relationship between the rates of gas movement and ignition front is independent of the rate of penetration of combustion products into the channel. In the case of ignition of a smooth wall, the rate of propagation of the ignition front is independent of channel diameter.

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Acc. Nr: **AP0047193**

Ref. Code: **UR0511**

PRIMARY SOURCE: Stomatologiya, 1970, Vol 49, Nr 1, pp **82-83**

Körchemskiy, I. S.; Margulis, V. A. **BRODIE'S ABSCESS OF THE MANDIBULAR BONE**

S u m m a r y. The authors describe a rare localization of Brodie's abscess in the mandibular bone. The paper presents data of cytological and microbiological investigation of the tap matter taken from the infiltrate of the soft tissues.

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REEL/FRA
19790692

DI 2